

27-37. (Canceled)

38. (Currently Amended) A locomotive, comprising:

5 a plurality of ~~direct current~~ traction motors corresponding to a plurality of axles and
a plurality of drive switches; and

a plurality of free-wheeling bypass circuits, each bypass circuit bypassing a
corresponding one of the plurality of plurality of drive switches, wherein each of the plurality
of drive switches is operable to pulse power sequentially to each of the traction motors to
produce a selected power requirement for each traction motor during a selected time interval,
10 wherein the pulse width is varied depending on a measured characteristic of the respective
traction motor, wherein each of the plurality of drive switches is operable to pulse power
sequentially to each of the traction motors to produce a selected power requirement for each
traction motor during a selected time interval, wherein the pulse width is varied depending
on a measured characteristic of the respective traction motor, wherein the pulses to each of
15 the traction motors are time sequenced such that a time separation between adjacent pulses
to different traction motors is at least substantially maximized, and wherein the measured
characteristic is an electrical current supplied to each traction motor.

39. (Previously Presented) The locomotive of claim 38, further comprising:

5 a controller operable to (a) determine the power requirement for each motor at each
of a number of successive time intervals; (b) determine the necessary voltage and pulse width
to achieve the desired power for each motor; and (c) sequentially pulse power to each of the
motors for a duration necessary to achieve the power requirement at each successive time
interval, wherein, during a selected time interval, a first traction motor receives a first power
pulse and a second different traction receives a second power pulse and wherein the first and
second power pulses have differing magnitudes. ←